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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,286	08/02/2001	Xiaobin Zhao	0623.1110001/JMC/MGP	3882

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EXAMINER	
LEWIS, PATRICK T	
ART UNIT	PAPER NUMBER
1623	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/920,286	ZHAO, XIAOBIN	
	Examiner	Art Unit	
	Patrick T. Lewis	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8 and 37-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8 and 37-42* is/are allowed.

6)☒ Claim(s) *43-46,48 and 49* is/are rejected.

7)☒ Claim(s) *47* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's Response Dated December 6, 2006

1. Claims 8 and 37-49 are pending. An action on the merits of claims 8 and 37-49 is contained herein below.

2. The rejection of claims 5-6 and 11 under 35 U.S.C. 102(b) as being anticipated by Malson US 4,963,666 (Malson) has been rendered moot in view of applicant's amendment dated December 6, 2006.

3. The rejection of claim 7 under 35 U.S.C. 103(a) as being unpatentable over Malson US 4,963,666 (Malson) has been rendered moot in view of applicant's amendment dated December 6, 2006.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 43-45 and 48-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Malson US 4,963,666 (Malson).

Malson teaches that a method commonly employed for producing insoluble polymeric materials involves covalent crosslinking of soluble polymers with bifunctional or polyfunctional reagents (columns 1-3). Crosslinking of polysaccharides is often

performed by reacting the hydroxyl groups of the polysaccharides in an alkaline aqueous solution with bi- or polyfunctional epoxides to thus bind the polysaccharide chains to one another via ether bonds, with concomitant formation of a gel. A process for producing degradable polysaccharide gels is described in Swedish patent application 8403817-3 according to which carboxyl groups of the polysaccharides are crosslinked with di- or polyfunctional epoxides by means of acid catalysis, whereby an insoluble gel is formed. In this case the bonds produced are ester bonds which in contrast to ether bonds are degradable in physiological environments. Malson teaches a method for producing gels of crosslinked polysaccharides by which it becomes possible inter alia to combine the aforesaid methods for acid- and base-catalyzed crosslinking so as to produce novel gel materials of controllable degradability. The principle of the manufacturing process is as follows: the polysaccharide containing carboxyl groups is at first reacted with a bi- or polyfunctional epoxide. This reaction may be performed in an alkaline, acidic or neutral medium. Following the removal of excess epoxide, the polysaccharide is dried at a desired pH. In the course of the drying process the polysaccharide molecules which have been epoxy-activated in the preceding step will move into closer proximity to each other and will become crosslinked. The process is particularly useful for producing water-sellable films of hyaluronic acid. Conditions in which the initial epoxy-activation takes place may be varied within a wide range and are chosen according to the properties desired in the final product. As has been mentioned above ester bonds are obtained under acidic reaction conditions. Where it is desired to introduce this type of degradable bonds in

the first step a pH is chosen within the range of from 2 to 6. By contrast, stable ether bonds are obtained if the activation is carried out at a pH > 8. At a neutral pH a mixture of the two types of bonds will be obtained. An example of a product according to the invention is the material obtained if the initial activation is carried out with a bi- or polyfunctional expoxide in an alkaline medium and the final crosslinking is carried out in an acidic medium after removal of non-bound reagent. Alternatively, the activation may be performed in an acidic medium and the final crosslinking in an alkaline medium; the thus resultant product is another example of a product according to the invention. It will be appreciated that in both cases the final product will contain both ester bonds and ether bonds.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Malson US 4,963,666 (Malson) as applied to claims 43-45 and 48-49 above.

Malson differs from the instantly claimed invention in that Malson does not explicitly teach the use of 1,2,3,4-diepoxybutane or 1,2,7,8-diepoxyoctane; however, the use of known members of classes of reagents in reactions to effectuate the same type of modifications taught in the prior art is not seen to render the instantly claimed methods obvious over the art. Once the general reaction has been shown to be old, the burden is on the applicant to present reason or authority for believing that a group on the starting compound would take part in or affect the basic reaction and thus alter the nature of the product or the operability of the process and thus the unobviousness of the method of producing it.

Conclusion

9. Claims 8 and 37-49 are pending. Claims 43-46 and 48-49 are rejected. Claim 47 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 8 and 37-42 are allowed.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick T. Lewis whose telephone number is 571-272-0655. The examiner can normally be reached on Monday - Friday 10 am to 3 pm (Maxi Flex).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick T. Lewis, PhD
Primary Examiner
Art Unit 1623

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